

# Aggenesis of the Gallbladder: Lessons to Learn

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## ABSTRACT

**Background:** Congenital absence of the gallbladder is a rare, usually asymptomatic, anatomical variation. Some affected individuals may present with a clinical picture suggestive of gallbladder disease. This presentation, coupled with the inability of standard abdominal ultrasonography to convincingly diagnose agenesis of the gallbladder, can put the surgeon in a diagnostic and intraoperative dilemma.

**Case Report:** A 30-year-old lady presenting with clinical features of cholecystitis and diagnosed with shrunken gallbladder on ultrasonography was scheduled for laparoscopic cholecystectomy. Intraoperatively, the gallbladder could not be seen even after thorough dissection in the region of the porta hepatis. The procedure was terminated at this stage, and further imaging of the extrahepatic biliary system by magnetic resonance cholangiopancreatography and endoscopic ultrasound confirmed the diagnosis of congenital absence of the gallbladder.

**Conclusion:** Nonvisualization of the gallbladder at laparoscopy, in the absence of any other diagnosed biliary disorder, need not prompt conversion to open exploration of the extrahepatic biliary system. Newer imaging modalities are relatively noninvasive and can provide good delineation of biliary anatomy. This allows well-planned treatment and at the same time prevents the added morbidity of a diagnostic laparotomy performed solely to confirm the absence of the gallbladder.

**Key Words:** Gallbladder, Absence, Congenital, Laparoscopy.

## INTRODUCTION

Congenital absence of the gallbladder (CAGB) is a rare anatomical variation that can present a diagnostic and intraoperative dilemma to the surgeon. Most affected individuals remain asymptomatic for life. Some may present with right upper quadrant pain and dyspeptic symptoms that mimic gallbladder pathology. Routine investigations frequently fail to diagnose gallbladder agenesis, leading to operative intervention. We present herein our experience with one such case.

## METHODS

A 30-year-old lady presented to the Accident and Emergency Department with severe right upper quadrant pain and nausea with dyspeptic symptoms. She was already under investigation for similar multiple episodes for the last 3 months.

Clinical examination revealed a tender right hypochondrium with a positive Murphy's sign, and a clinical diagnosis of cholecystitis was made. Blood investigations were within normal limits.

A previous ultrasound examination had shown hyperechoic shadows suggestive of a shrunken gallbladder. A repeat ultrasound also showed a bright echogenic streak in the gallbladder fossa suggestive of a shrunken fibrotic gallbladder with a normal biliary tree. We proceeded to perform a laparoscopic cholecystectomy on the basis of the clinical diagnosis and a suggestive ultrasound.

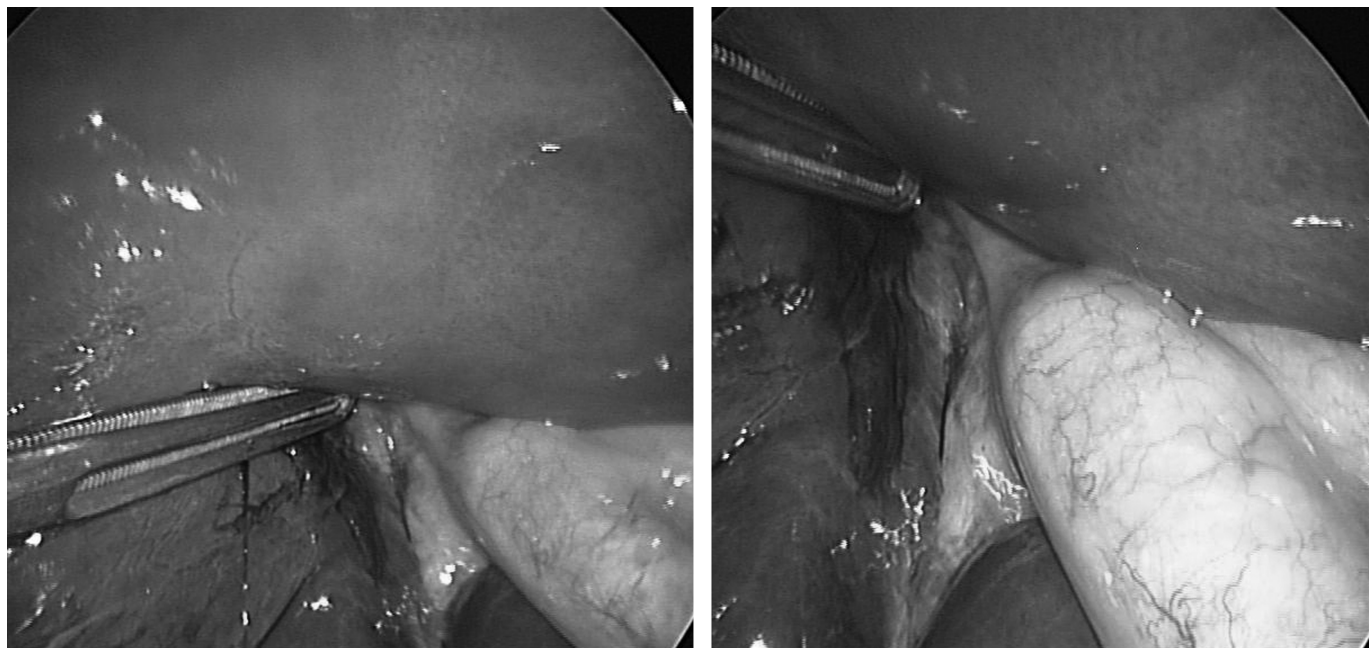
On laparoscopy, the gallbladder could not be visualized. A meticulous search was made for a shrunken gallbladder in the area of Calot's triangle. The common bile duct was visualized from the junction of the left and right hepatic ducts until it disappeared behind the second part of the duodenum. No evidence of gallbladder, cystic duct, or cystic artery was found (**Figure 1**).

We were convinced that no further information could be gained by open or laparoscopic common bile duct (CBD) exploration or intraoperative cholangiography. Such action would have significantly increased morbidity without contributing to the diagnosis. It was decided instead to postoperatively perform magnetic resonance cholangio-

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**Figure 1.** Congenital absence of the gallbladder: laparoscopic view of porta hepatis.

pancreatography (MRCP) and endoscopic ultrasound (EUS) to confirm CAGB and rule out an ectopic gallbladder.

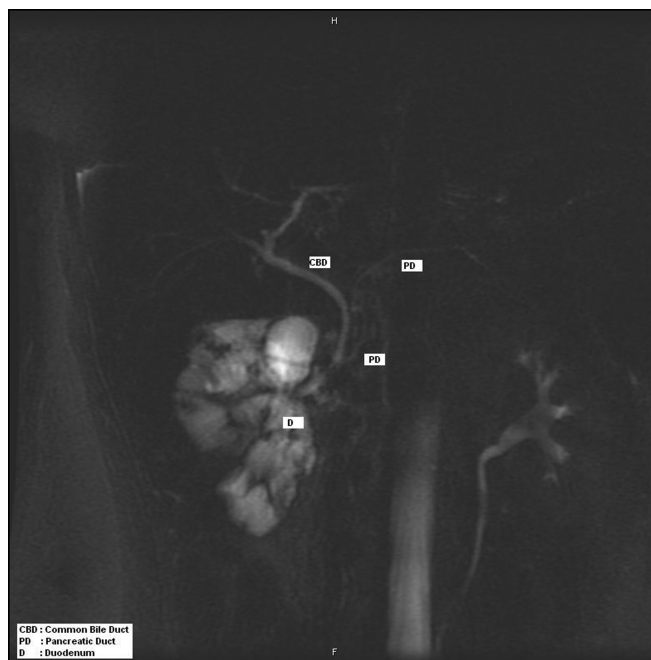
MRCP failed to demonstrate a gallbladder (**Figure 2**). EUS also failed to reveal a gallbladder in its normal or ectopic positions.

## RESULTS

CAGB is a rare finding with a reported incidence of 0.01 to 0.075%.<sup>1-4</sup> It has been reported as a heritable trait in some cases.<sup>1</sup> Though these patients should be asymptomatic as evidenced by the absence of symptoms in patients who have undergone cholecystectomy, 34% of patients in a review of 44 cases of CAGB had dyspeptic symptoms, and 54% had symptoms suggestive of biliary colic.<sup>5</sup> Twelve patients even had jaundice, but only 8 of these had gallstones or any other pathology in the common bile duct. It has been suggested that CAGB can predispose to an increased incidence of common duct stones.<sup>6,7</sup> Our patient, though with normal biochemical results, had dyspeptic symptoms and pain similar to that occurring with cholecystitis.

Various authors<sup>1,2,5,6,8-11</sup> have found ultrasound to be misleading in interpreting a contracted and fibrotic gallbladder. Our experience was very similar.

Most symptomatic patients are scheduled for surgery with



**Figure 2.** Magnetic resonance cholangiopancreatography: absence of the gallbladder and cystic duct.

a diagnosis of chronic cholecystitis with a contracted fibrosed gallbladder and a normal biliary tract. Failure to visualize the gallbladder at laparoscopy prompts surgeons to undertake a laparoscopic or open exploration of the

biliary tracts.<sup>1,2,3,6,10-13</sup> Frequently, it is without any benefit and adds considerably to the morbidity of the procedure. This may in fact expose the biliary tree to iatrogenic injury.<sup>6</sup>

Significant progress in radiology and widespread availability of noninvasive imaging techniques like computed tomography, MRCP, and EUS provide an excellent alternative to open exploration and intraoperative cholangiography.<sup>2,3,4,6,10,14</sup> EUS has been shown to be useful in detecting anomalies in the extrahepatic biliary tree.<sup>15,16</sup> Though ERCP is usually avoided, as the patients are generally young, in doubtful cases ERCP may be undertaken. These investigations provide us with a full spectrum of imaging techniques at an acceptable financial cost without adding to the morbidity.<sup>12,17</sup>

## CONCLUSION

Congenital absence of the gallbladder can often pose a dilemma to surgeons because it is often diagnosed during a laparoscopic cholecystectomy. The tendency to proceed to immediate open exploration of the biliary tree should be avoided, especially when no other known pathology in the biliary tree is present. Newer available minimally invasive imaging modalities provide us with a useful alternative to delineate the anomalous biliary anatomy and to diagnose any concurrent pathology, which can then be treated in a well-planned manner. We recommend that in cases of intraoperative nonvisualization of the gallbladder during laparoscopic cholecystectomy, the patient should not undergo any further procedure, but should later be radiologically and if necessary endoscopically investigated to confirm the diagnosis of gallbladder agenesis.

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